

Before the
Federal Communications Commission
Washington DC 20554

In the Matter of)	
)	
ReconRobotics, Inc.,)	
Request for Waiver of Part 90 of the)	WP Docket No. 08-63
Commission's Rules to Provide for)	
Limited Public Safety and Security)	
Operations at 430-448 MHz)	

**Opposition of ReconRobotics, Inc. to
the Petition for Reconsideration of ARRL**

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Pursuant to Section 1.106(g) of the Commission's Rules,¹ ReconRobotics, Inc. opposes the Petition for Reconsideration of ARRL (filed March 24, 2010) (ARRL Petition) that challenges a joint Bureau Order granting a waiver for the company's Recon Scout® device.²

A. SUMMARY

The Commission granted a waiver to ReconRobotics over ARRL's opposition. ARRL's present efforts to rescind that grant overlook the Commission's most basic procedural requirements. Among other deficiencies, ARRL does not file under any Commission rule that entitles it to relief; fails to make the prescribed showings for an application for review; does not present the newly available facts or arguments required for reconsideration; and ignores all of the prerequisites for a stay.

Substantively, ARRL fares no better. Although it lists multiple grounds for objecting to the Recon Scout's use of the 430-448 MHz band, it offers no plausible support for any of them.

ARRL seeks to justify moving the Recon Scout to higher frequencies in part by challenging the

¹ 47 C.F.R. § 1.106(g).

² *ReconRobotics, Inc., Request for Waiver of Part 90 of the Commission's Rules*, WP Docket No. 08-63, Order, DA 10-291 (Wireless Telecom. Bur. and Public Safety and Homeland Security Bur. released Feb. 23, 2010) (*Waiver Order*).

well-established fact that building penetration is generally better at lower frequencies. But instead of technical analysis or experimental data, ARRL submits only isolated screen grabs lacking any scholarly or empirical support. It raises belated and frivolous objections to ReconRobotics' own study on this issue. It argues that certain waivers in other bands, some granted and some not, all justify denial here, even though the technologies and uses are different. And, without any evidence or arguments, it questions the Commission's choice of balance between a low risk of interference to Amateur radio and the high probability of the Recon Scout saving lives of first responders.

ARRL demands certain changes to required device labeling and statements in the Recon Scout instruction manual; ReconRobotics does not oppose those. And ARRL raises allegations of illegal marketing, which ReconRobotics will answer in a parallel and ongoing enforcement inquiry.

In the end, ReconRobotics shows that the *Waiver Order* is fully supported by the record. ARRL's Petition is not, and should be promptly dismissed or denied.

B. ARRL'S PETITION MUST BE SET ASIDE ON PROCEDURAL GROUNDS.

1. ARRL's Petition, not being properly before the Commission, must be dismissed.

The Commission's Rules provide several ways for a party aggrieved by a decision to demand another look. ARRL has not invoked any of them.

ARRL's opening sentence characterizes its Petition as filed "pursuant to Section 1.429 of the Commission's Rules."³ That section governs reconsideration of notice and comment

³ ARRL Petition at 1.

rulemakings,⁴ which are necessarily acted on by the full Commission.⁵ The present decision is a waiver granted by the Deputy Chiefs of two Bureaus. Section 1.429 is inapplicable.

ARRL had two procedural options. It could have petitioned the Wireless Telecommunications Bureau and Public Safety and Homeland Security Bureau to reconsider their action pursuant to Section 1.106.⁶ Or it could have applied to the Commission for review of the Bureaus' action pursuant to Section 1.115.⁷ It did neither. Instead, it asked the Commission to reconsider a decision that the Commission had never considered. This comports with neither the Commission's Rules nor common sense.

Even if the Commission were to treat ARRL's Petition as an application for review, the Petition still fails. Section 1.115 requires that an application for review "specify with particularity" at least one of the following factors: conflict with statute, regulation, case precedent, or established Commission policy; question of law or policy not previously resolved by the Commission; application of a precedent or policy that should be overturned or revised; erroneous finding as to an important or material question of fact; or prejudicial procedural error.⁸ The Petition does not establish any of these.

Rather, ARRL calls the Bureaus' decision "improvidently granted," "arbitrary and capricious," "superficial," "erroneous," "insufficient," "ineffective," "unsupported," "unjustified," "flawed," "non-empirical," "unenforceable," and made "merely to placate a

⁴ 47 C.F.R. §§ 1.429, 1.106.

⁵ 5 U.S.C. § 553(c) (rulemaking by "the agency").

⁶ 47 C.F.R. § 1.106. ARRL mentioned this section in a footnote (at 1 n.2), but inconsistently addressed its pleading to the Commission.

⁷ 47 C.F.R. § 1.115.

⁸ 47 C.F.R. § 1.115(b)(2).

manufacturer.”⁹ While clearly communicating ARRL’s unhappiness with the outcome, the Petition does not demonstrate any of the factors needed to warrant Commission review. Thus, even if treated as a petition for review, it must be dismissed.

2. *ARRL’s Petition should be denied as repetitious.*

To succeed as a petition for reconsideration, ARRL’s pleading must demonstrate that the challenged order either contains a material error or omission, or raises additional facts not known or existing until after the petitioner’s last opportunity to present them.¹⁰ A petition that “simply reiterates arguments previously considered and rejected will be denied.”¹¹ ARRL has not met the standards. The Petition challenges the *Waiver Order* on the supposed basis of its having “failed to address a number of determinative arguments raised timely in comments . . .”¹² In admitting it raised these arguments previously, ARRL concedes that the present Petition is repetitious, and hence subject to denial under the precedents cited above. The Petition then goes on to reiterate ARRL’s previous arguments, which the Bureaus considered and rejected in the course of the proceeding. We note some of this history below.

⁹ ARRL Petition at 2, 3, 5-7, 9-12, 14, 17, 18.

¹⁰ *SafeView, Inc.*, Memorandum Opinion and Order, 25 FCC Rcd 592 at ¶ 7 (2010), citing *WWIZ, Inc.*, 37 FCC 685, 686 (1964), *aff’d sub nom Lorain Journal Co. v. FCC*, 351 F. 2d 824 (D.C. Cir. 1965), *cert. denied*, 383 U.S. 967 (1966). Like the present matter, *SafeView* was a Commission review of a Bureau-level decision.

¹¹ *FM Radio Service, LLC*, Memorandum Opinion and Order, DA 10-318, FCC File No. 0001523859 at 3 (WTB rel. Feb. 25, 2010); *accord SafeView, Inc.*, *supra* note 11, at ¶ 7.

¹² ARRL Petition at 2.

3. *ARRL's request for stay ignores minimum procedural requirements.*

ARRL asks the Commission to stay the effectiveness of the Order,¹³ but overlooks the two basic requirements for a stay. One is a separate pleading to request the stay.¹⁴ The other is a showing on each of four issues: (a) likelihood of petitioner prevailing on the merits; (b) irreparable harm to petitioner absent a stay; (c) lack of harm from a stay to other interested parties; and (d) the public interest in favor of a stay.¹⁵ ARRL does not attempt to address any of these points. Its request for stay accordingly must be dismissed.

C. THE COMMISSION IS FULLY JUSTIFIED IN ALLOWING RECONROBOTICS TO OPERATE IN THE 430-448 MHZ BAND.

ARRL charged early in the proceeding (without support) that ReconRobotics chose the 430-448 MHz band merely to avoid the trouble of reconfiguring a military product for civilian use.¹⁶ It repeats the same charge here, still without evidence.¹⁷ ARRL argues (as it did then) that ReconRobotics should have used the 2400-2483.5 MHz unlicensed band, as does a different product originally manufactured by Remington Arms.¹⁸

ReconRobotics responded almost two years ago:

The costs of prosecuting the waiver – and especially the loss of revenue during its pendency – far exceed the costs of re-engineering. As a

¹³ ARRL Petition at 1 n.1.

¹⁴ 47 C.F.R. § 1.44(e) (“Any such request [to stay the effectiveness of a decision or order] which is not filed as a separate pleading will not be considered by the Commission.”)

¹⁵ *Paging Systems, Inc.*, 20 FCC Rcd 8087 at ¶ 15 (2005), *citing Washington Metropolitan Area Transit Commission v. Holiday Tours, Inc.*, 559 F.2d 841, 843 (D.C. Cir. 1977).

¹⁶ Comments of ARRL at 6 (filed May 27, 2008).

¹⁷ ARRL Petition at 4.

¹⁸ ARRL Petition at 6-7 (citing a waiver initially granted to Remington Arms Company, and later extended to successors Optonics, Inc. and Remotec, Inc.)

business matter, ReconRobotics would much prefer to use 2.4 GHz, file a me-too request on the *Remington Arms* waiver, and put the product on the market.¹⁹

Since then, lost revenues have extended another 21 months, and legal costs have mounted.

ReconRobotics explained in the original Request for Waiver why its spectrum needs differ from those of Remington Arms:

The Remington device is not maneuverable. “[T]hrown like a baseball,” it transmits from wherever it lands. The worst case for the Remington device (from a propagation standpoint) arises when is thrown through a door or window, where the signal may have to penetrate one building wall at most. The Recon Scout, in contrast, can be remotely driven deep into a structure, or even down a stairwell into a basement. The signal may have to pass through several walls to reach the operator. Successful operation at 2.4 GHz, or even 902-928 MHz, would require higher power, resulting in either batteries that are too big or a battery life that is too short.²⁰

ARRL now questions the basic premise that building penetration is better at 430-448 MHz than at 902-928 MHz or 2.4 GHz,²¹ but starts far afield. It states that penetration and propagation vary with distance, frequency, building structure, placement of devices being tested, radiation angles, and polarization of transmit/receive antennas.²² ReconRobotics agrees. ARRL asserts that a change in location of only a meter can sometimes affect the measurement results.²³ Again, ReconRobotics agrees. ARRL argues that operation at a higher frequency would reduce the distance that a Recon Scout must move to escape a null.²⁴ ReconRobotics agree with this,

¹⁹ Comments of ReconRobotics, Inc. at 8 (filed June 6, 2008) (citation footnote omitted).

²⁰ Request for Waiver of ReconRobotics, Inc. at 8 n.6 (filed Jan. 11, 2008) (citation omitted).

²¹ ARRL Petition at 6-7, 20-33.

²² *Id.* at 20.

²³ *Id.* at 22.

²⁴ *Id.* at 23.

too, in principle, although the actual differences are only a few inches and not operationally significant.²⁵ ARRL asserts that higher frequencies work better in a building that has suffered partial collapse.²⁶ ReconRobotics has no evidence either way, although the point is irrelevant because the company expects most Recon Scout applications to involve intact buildings.

But these are only distractions from ARRL's key issue: whether, other things being equal, lower frequencies penetrate building walls better than higher frequencies do. When it finally grapples with the question and strives to reach a negative answer, ARRL cannot produce evidence that survives even the most casual scrutiny. One of its sources compares the effect of lower frequencies, in one set of buildings, to higher frequencies in a completely different set of buildings (including some in another country).²⁷ This proves nothing. Another source mentions "some studies" that show average penetration loss increasing with frequency for "some types of building,"²⁸ but it neither presents the data nor even cites the studies. ARRL also presents an isolated slide from a university lecture with no supporting citations,²⁹ a table from an IEEE paper showing that building penetration loss in fact *increases* with frequency,³⁰ and another random slide containing no quantitative data whatsoever.³¹

²⁵ A half-wavelength at 450 MHz is 33 cm, compared to 17 cm at 900 MHz.

²⁶ ARRL Petition at 24.

²⁷ *Id.* at 25.

²⁸ *Id.* at 26.

²⁹ *Id.* at 27.

³⁰ *Id.* at 28.

³¹ *Id.* at 29.

ReconRobotics, in contrast, addressed the same question experimentally. In November 2008, the company submitted a paper that directly compared the performances of two Recon Scouts, identical in all respects, except that one operated at 430-450 MHz and the other at 902-928 MHz.³² The study simulated operation under realistic conditions at several locations in a building. The report presented video screen shots at varying distances and through varying number of walls, along with readings of signal strength. The results showed the clear superiority of the 430-450 MHz band for Recon Scout operations.

The same principle has independent verification in a 2008 NIST study that compared propagation at different frequencies through several types of structures, and found reliably higher attenuation at 902-928 MHz than at 439-449 MHz.³³

ReconRobotics's paper was in the public docket for fifteen months before release of the *Waiver Order*. ARRL had nothing to say about the paper (or anything else in the docket) for that time, and only now emerges with a critique. This is too late. A petitioner for reconsideration "must demonstrate that such [newly presented] facts were not known or did not exist until after the petitioner's last opportunity to present such matters."³⁴ Had ARRL spoken up earlier, ReconRobotics could have responded in the context of the ongoing proceeding. ARRL should not be allowed to lie in wait for over a year and ambush the proceeding only now.

³² ANDREW DRENNER ET AL., EMPIRICAL STUDY OF THE EFFECTS OF 434 MHz VS. 915 MHz FREQUENCY BAND ON THE PERFORMANCE OF THE RECON SCOUT, filed with Letter from Mitchell Lazarus to Marlene H. Dortch, Secretary, FCC (filed Nov. 3, 2008).

³³ NATIONAL INSTITUTE OF STANDARDS AND COMMERCE, C.L. HOLLOWAY ET AL., ATTENUATION OF RADIO WAVE SIGNALS COUPLED INTO TWELVE LARGE BUILDING STRUCTURES 26, 27 (2008), available at http://www.nist.gov/cgi-bin/get_pdf.cgi?pub_id=32854 (last checked Mar. 31, 2010) (comparing propagation results at 450 MHz (Table 20) with 900 MHz (Table 21)).

³⁴ *SafeView, Inc.*, *supra* note 11, at ¶ 7.

In any event, ARRL's criticisms of the report are not well taken. ARRL contends the study used too few buildings, too few measurement points, no "compromised buildings," and antennas with dissimilar capture area.³⁵ ReconRobotics also would have liked to use more buildings and more measurement points; but every study has its time and cost constraints, and the data here amply justify the conclusions. ARRL would have preferred antennas of "approximately the same physical size,"³⁶ where ReconRobotics used quarter-wave antennas at both frequencies for an apples-to-apples comparison.³⁷ ReconRobotics took readings through intact walls because that is how we expect the Recon Scout to be used, in most cases. Finally, ARRL claims to find minor discrepancies between received signal strength and a data column titled "Subjective Ratings of Video."³⁸ Subjective ratings often have such discrepancies. The report provided representative screen shots so that readers could judge the video quality for themselves.

In short, the record fully supports the Commission's decision on choice of frequency band. Nothing in ARRL's Petition seriously challenges that outcome.

* * * *

A few other points need only brief mention.

³⁵ ARRL Petition at 30-32.

³⁶ *Id.* at 31.

³⁷ More precisely, ReconRobotics used quarter-wave antennas at both frequencies on the robots and the spectrum analyzer, so that signal-strength readings would not be contaminated by differences in antenna efficiency. The handheld unit, which receives and displays TV signals, used a quarter-wave antenna at 434 MHz and a half-wave antenna, which provides 3 dB more efficiency, at 915 MHz. Picture quality at 915 MHz was markedly inferior despite that 3 dB advantage. For details, *see* Drenner et al., *supra*, note 33 at 3.

³⁸ *Id.* at 32.

Allocation issues. ARRL objects to what it calls “spectrum allocations by waiver.”³⁹ There was no change in allocation here. The U.S. Table of Allocations lists Private Land Mobile for the 420-450 MHz band.⁴⁰ Part 90 of the Commission's Rules also lists the band.⁴¹ Users under the waiver will be required to obtain Part 90 licenses.⁴² The application is arguably novel, but has no effect on the allocation.

Prior waivers. ARRL argues that decisions on various other waivers support denial of this one. As a general matter, the three proceedings it cites, and this one, all concern different technologies used in different ways, in some cases for different purposes. The Commission's disposition of one offers little guidance as to the others. For example, although ARRL finds the Commission's grant of the Remington Arms waiver to be an “obvious rebuttal” of the need for this one,⁴³ we showed above (and at the start of the proceeding) that the Remington Arms waiver is inapplicable. ARRL also re-raises the denial of a waiver for a positioning system at 433 MHz as grounds for denial here,⁴⁴ despite ReconRobotics' having fully answered that argument earlier.⁴⁵

³⁹ *Id.* at 5.

⁴⁰ 47 C.F.R. § 2.106.

⁴¹ 47 C.F.R. § 90.103(b) (table).

⁴² *Waiver Order* at ¶¶ 13, 15.

⁴³ ARRL Petition at 6.

⁴⁴ ARRL Petition at 5 (discussing *Terry Mahn, Esq.*, 21 FCC Rcd 14409 (2006)).

⁴⁵ Reply Comments of ReconRobotics Inc. at 13-14 (filed June 6, 2008) (unlike ReconRobotics, applicant in *Terry Mahn* sought primary status and increased interference protection, did not show why other frequencies are unsuitable, and incorrectly equated 25% difference in output power to 600% variation in frequency stability).

Finally, ARRL applauds the dismissal of the *Octatron and Chang Industry, Inc.* 902-928 MHz waiver request as precedent for denial in this proceeding⁴⁶ – even though ARRL had earlier cited that same request as evidence that ReconRobotics could safely use 902-928 MHz.⁴⁷ (That band could be right or wrong for ReconRobotics, but not both.) In any event, the Commission did *not*, as ARRL suggests, make a substantive finding that the *Octatron* device would cause harmful interference. Rather, the Commission dismissed the request – without prejudice – because the applicant had failed to provide information showing the device would not cause interference. (If anything, that dismissal underscores the sufficiency of the record here.) The *Octatron* applicant is free to re-file in the future and make its case. Whatever the ultimate outcome, it will have no bearing on the ReconRobotics waiver.

Interference Issues. ARRL argues that the ReconRobotics device will cause interference to Amateur Radio.⁴⁸ The Commission concluded that interference to Amateur satellite communications is unlikely, and that interference to other Amateur operations can largely be avoided.⁴⁹ ARRL is unwilling to accept either this evaluation or any slight risk of interference. Today, however, virtually all users must share their spectrum, much as Amateur Radio shares this band with Federal radar users. Part of the Commission’s job is to weigh the public interest

⁴⁶ ARRL Petition at 7 (*Octatron and Chang* denied for potential interference to Amateur Radio, among other uses), 8 (claiming reasons for denial in for *Octatron and Chang* apply to ReconRobotics).

⁴⁷ Comments of ARRL at 5 (filed May 27, 2008).

⁴⁸ ARRL Petition at 10-14.

⁴⁹ *Waiver Order* at ¶¶ 8-9.

in competing demands for use of the same frequencies.⁵⁰ “It is for the Commission to measure the force of the various vectors [of competing interests] and to chart the resultant in the parallelogram of forces.”⁵¹ Here, the Commission expressly concluded, “[A]uthorization of a device with the capabilities of the Recon Scout would further the public interest.”⁵² Nothing in ARRL’s Petition establishes the contrary.

ARRL also fears the reverse: that Amateur operators will cause interference to a Recon Scout, and be blamed for it.⁵³ ReconRobotics’ original request proposed operations secondary to Amateur radio.⁵⁴ The Commission made that a condition of the waiver.⁵⁵ Any incoming Amateur interference will be ReconRobotics’ problem, not the Amateurs’.

⁵⁰ 47 U.S.C. § 303(c) (“[T]he Commission from time to time, as public convenience, interest, or necessity requires, shall . . . Assign bands of frequencies to the various classes of stations”)

⁵¹ *Lorain Journal Co. v. FCC*, 351 F. 2d 824, 829 (D.C. Cir. 1965), *cert. denied*, 383 U.S. 967 (1966).

⁵² *Waiver Order* at ¶ 10.

⁵³ ARRL Petition at 14 (“Radio Amateurs will be perceived to be, or held responsible for the failure or malfunction of these analog devices in a given application and the danger to public safety officers who are relying on them.”)

⁵⁴ Request for Waiver of ReconRobotics, Inc. at 11 (filed Jan. 11, 2008).

⁵⁵ *Waiver Order* at ¶ 11 (Recon Scout secondary to all Federal and licensed non-Federal users).

D. RECONROBOTICS ASSENTS TO ARRL’S REQUESTED LABELING AND INSTRUCTION MANUAL CHANGES.

ARRL asks that the required label be changed to read, “This device may not interfere with Federal and non-federal stations operating in the 420-450 MHz band and must accept any interference received.”⁵⁶

Similarly, ARRL asks that the required statement in the instruction manual be changed to read, “Although this transmitter has been approved by the Federal Communications Commission, ~~there is no guarantee that it will not receive interference~~ it must accept any interference received from Federal or non-federal stations, including interference that may cause undesired operation.”⁵⁷

ReconRobotics does not oppose either of these changes.

E. ARRL’S ALLEGATIONS OF ILLEGAL MARKETING ARE IRRELEVANT TO THE PROCEEDING.

ARRL suggests that that ReconRobotics has engaged in unlawful marketing. It alleges the Recon Scout has appeared on eBay, that ReconRobotics lists “resellers” on its website, and that its website includes a testimonial from a California police department.⁵⁸ According to ARRL, these alleged violations call into question whether ReconRobotics will control

⁵⁶ ARRL Petition at 15. Changes to the label required in the *Waiver Order* at ¶ 11 are underlined in text.

⁵⁷ ARRL Petition at 15. Changes to the statement label required in the *Waiver Order* at ¶ 11 are marked in text with strikeout and underline.

⁵⁸ ARRL Petition at 15-16.

deployment going forward.⁵⁹ ARRL adds that it reported these matters to the Commission's Enforcement Bureau.⁶⁰

ARRL's allegations, even if true, might at most be grounds for an enforcement action, but not for reconsideration of the waiver.

ReconRobotics denies wrongdoing with respect to the specifics in the Petition, but will not provide further information here. The company received an inquiry from the Enforcement Bureau – no doubt the result of ARRL's report, as the Bureau asks about some of the same specifics that ARRL raises. ReconRobotics will respond to that inquiry in full, supported by affidavit. It is unwilling to simultaneously litigate the same issues in this docket, without the procedural protections afforded in an enforcement proceeding (such as confidentiality for competitively sensitive information). We are confident that the outcome of the inquiry will satisfy the Commission of the company's intent and ability to enforce the marketing restrictions in the *Waiver Order*.

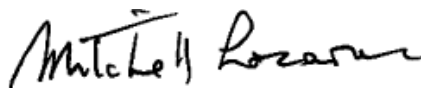
⁵⁹ *Id.* at 16.

⁶⁰ *Id.*

CONCLUSION

ARRL has not presented any new evidence or arguments that justify reconsideration of the waiver. The Commission should promptly deny ARRL's Petition.

Respectfully submitted.

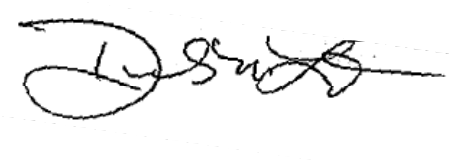
A handwritten signature in black ink, appearing to read "Mitchell Lazarus".

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April 6, 2010

CERTIFICATE OF SERVICE

I, Deborah N. Lunt, a secretary with the law firm of Fletcher, Heald & Hildreth, PLC, hereby state that true copies of the foregoing Opposition of ReconRobotics, Inc. to the Petition for Reconsideration of ARRL has been mailed first class, postage prepaid, this 6th day of April, 2010, to the attached service list (* denotes service by hand delivery):

A handwritten signature in black ink, appearing to read 'Deborah N. Lunt', with a stylized, flowing script.

Deborah N. Lunt

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